SOSNOVSKIY, A.T.; TIMOFEYEVA, L.P.; VITORSKIY, A.P.

Session of the White Russian Scientific Research Dermovenereological Institute. Zdrav. Bel. 9 no.1:93-94 J'63. (MIRA 16:8)

(WHITE RUSSIA--DERMATOLOGY--CONGRESSES)
(WHITE RUSSIA--VENEROLOGY--CONGRESSES)

VITOVSKIY, A.P.

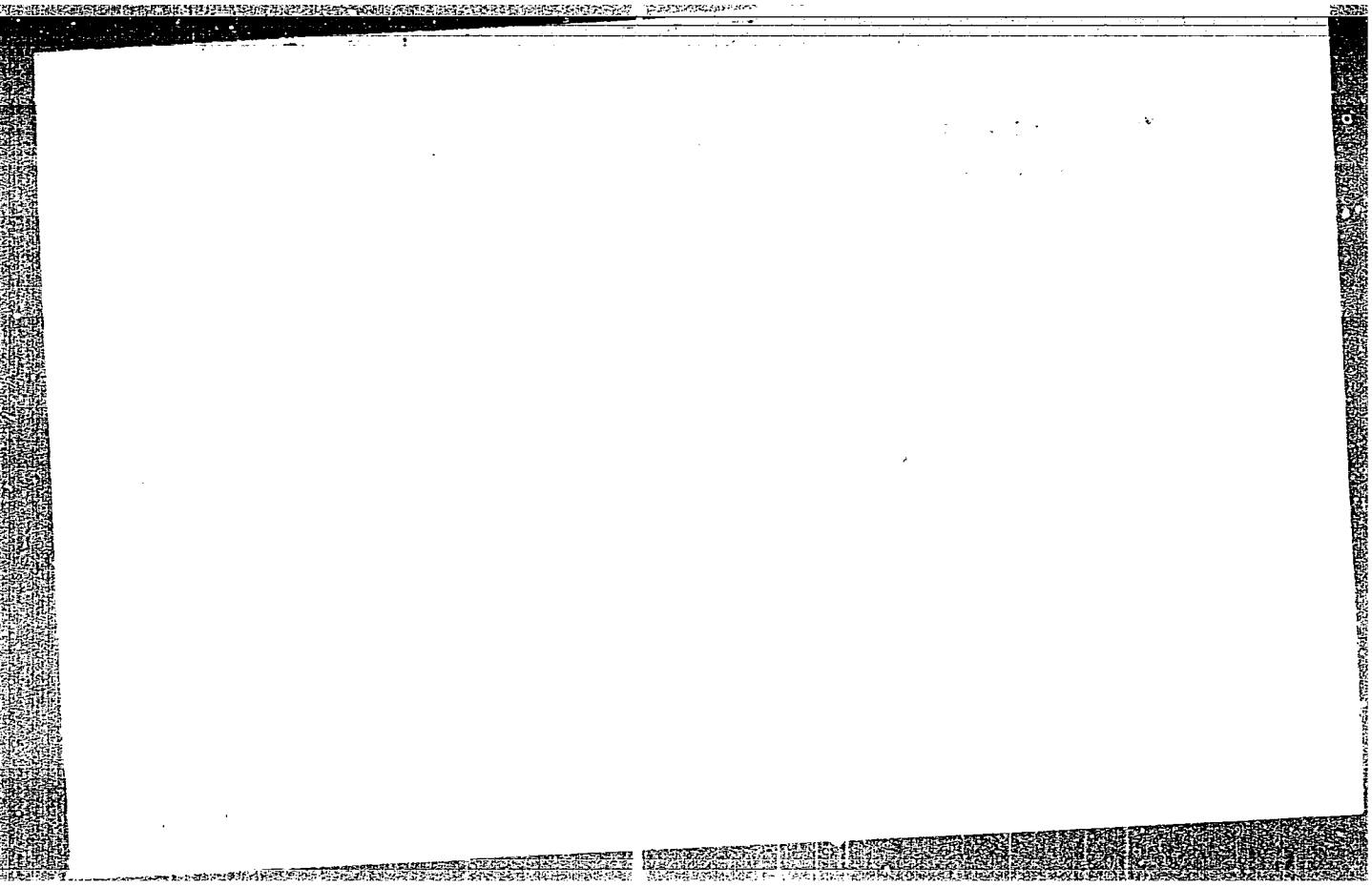
Erecting apartment houses using large-sized silicate blocks. Mekh. trud.rab. 10 no.5:19-21 My '56. (MLRA 9:8)

1. Glavnyy inzhener tresta No. 86.
(Kharkov--Apartment houses) (Building blocks)

KUZNETSOV, N.A., otv.red.; VITKOVSKIY, A.P., red.; BOZHENKO, Ye.F., red.; GAVRILENKO, I.G., red.; GRINEK, V.S., red.; IGRUNOV, N.S., red.; KRUPA, G.D., red.; RAZDOBARKIN, V.I., red.; RYABOKOBYLENKO, V.I., red.; SEMENOV, M.K., red.; CHEFRANOV, B.N., red.; FUNSHTEYN, D.A., red.; PETROPOL'SKAYA, O.A., red.

[Belgorod Boiler-Making Factory] Belgorodskii kotlostroitel'nyi. Voronezh, TSentral'noe-Chernozemnoe knizhnoe izd-vo, 1964. 185 p. (MIRA 18:7)

1. Belgorodskiy Gosudarstvennyy kotlostroitel'nyy zavod. 2. Direktor Belgorodskogo Gosudarstvennogo kotlostroitel'nogo zavoda (for Chefranov). 3. Nachal'nik byuro tekhnicheskoy informatsii i izobretatel'stva Belgorodskogo Gosudarstvennogo kotlostroitel'nogo zavoda (for Gavrilenko). 4. Glavnyy konstruktor spetsial'nogo konstruktorskogo byuro energeticheskikh kotlov Belgorodskogo Gosudarstvennogo kotlostroitel'nogo zavoda (for Semenov). 5. Zamestitel' glavnogo inzhenera Belgorodskogo Gosudarstvennogo kotlostroitel'nogo zavoda (for Ryabokobylenko).



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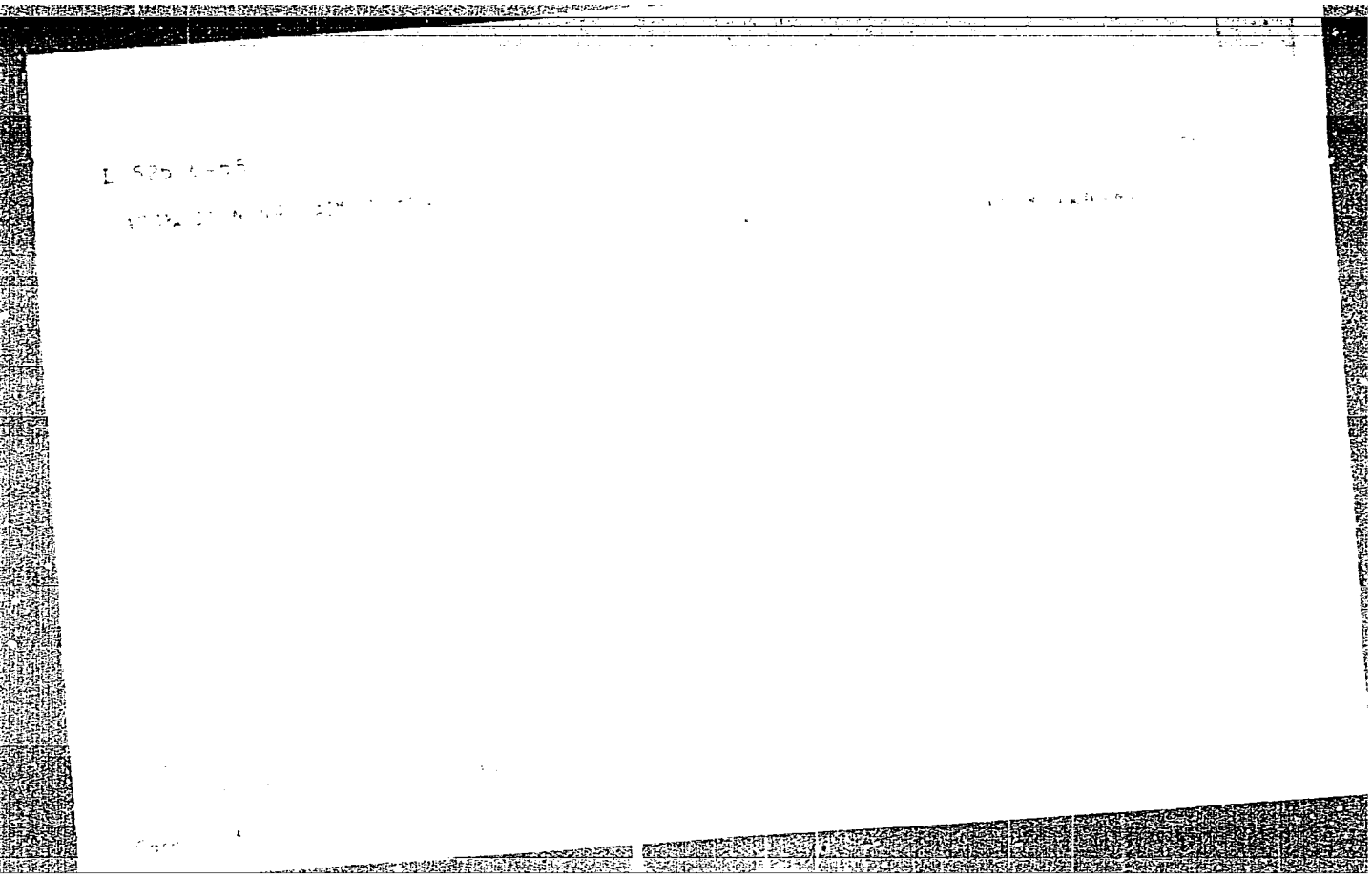

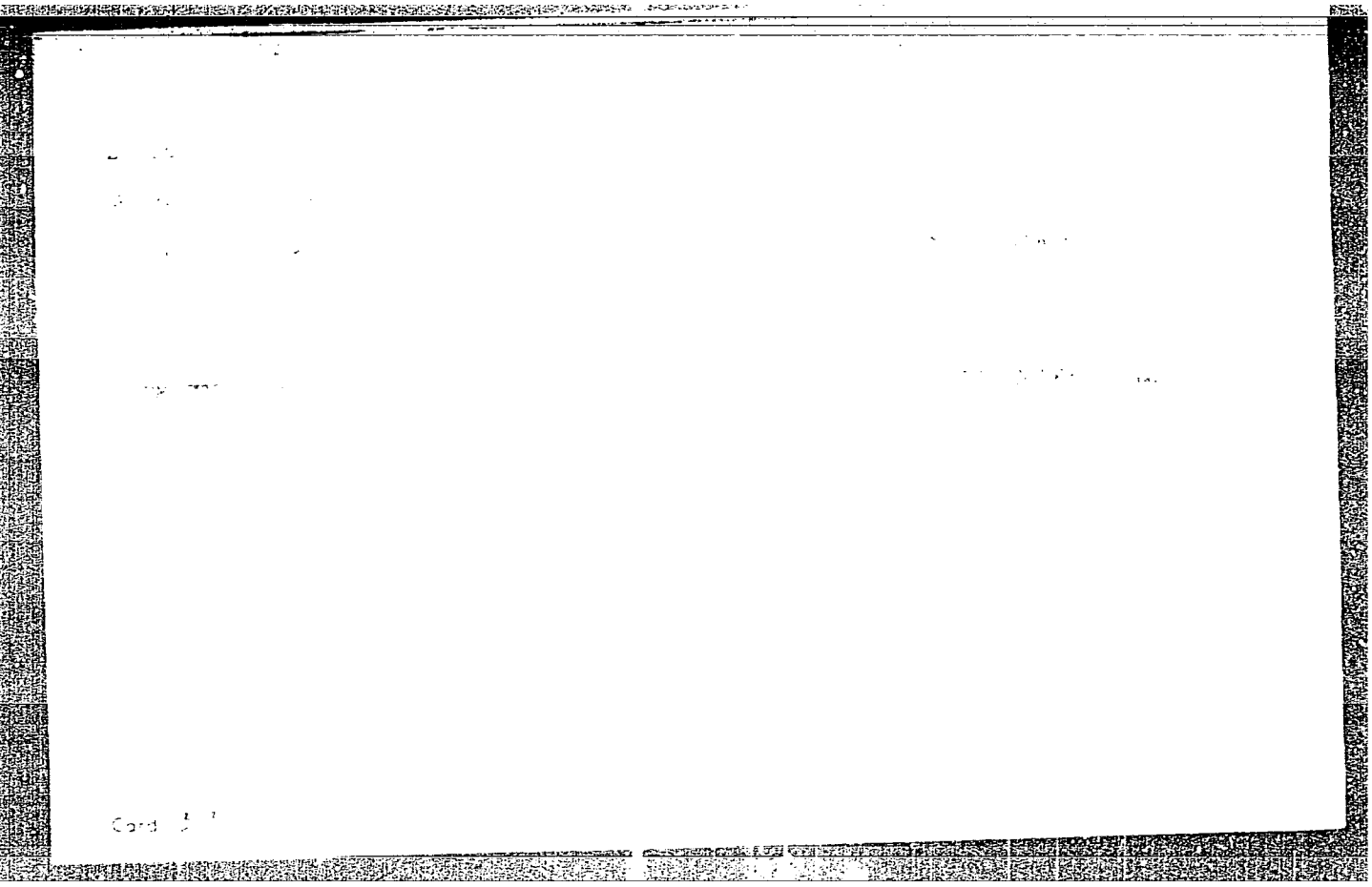

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76010
SOV/70-4-5-32/36

AUTHORS: Belyayev, L. M., Vitovskiy, B V., Dobrzhanskiy, G. F.

TITLE: Some Changes in the Methods of Crystal Growth

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 5, pp 791-794 (USSR)

ABSTRACT: The three changes sucessfully tested by the authors are: (1) The temperature at the face of a crystal growing of molten phase changes because of the changing $\frac{\text{solid}}{\text{liquid}}$ ratio, changing concentrations of admixtures, etc. Consequently, the composition of grown crystals may be uniform. To avoid the temperature change, a heater was placed in the molten phase and slowly pulled toward the growing crystal to maintain its temperature, controlled by a thermocouple, constant. (2) The crystals whose solubility hardly changes with temperature are usually grown by evaporation of the solution, for example, in the crystallizer developed by Robinson. The changed variety of the method provides constant temperature of a growing crystal and

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absorption of the vapor. The crystallizer (Fig. 2) consists of glass container 1, placed upon electric heater 2, adjuster 3 providing a constant temperature, thermometer 4, cap 5, mantle 6 for holding vapor-absorbing cotton 7, capillary pipe with cock 9 to control draining of the condensed vapor, rotating magnet that rotates stirring rod 10. (3) Verneille's method of crystal growth of molten phase is changed as shown in Fig. 3. The quartz tube of the chamber crystallizer, placed on plate 1, is heated by winding. Crystal holder δ extending through Wilson's packing a joins reducer that transmits rotation from motor to the crystal holder providing the latter's rotation at the rate of 2 rpm. Cap 4 and other parts join through vacuum packing. The chamber is pumped out to high vacuum or filled in with inert or any other gas through pipe B. The compressed powder briquet 5 of the compound to be crystallized is placed in protecting mantle 3 with heating winding in, and is coaxial with the crystal or its seed 6 stuck on the rotating crystal holder. The briquet-to-crystal distance is controlled by moving the

Some Changes in the Methods of Crystal Growth

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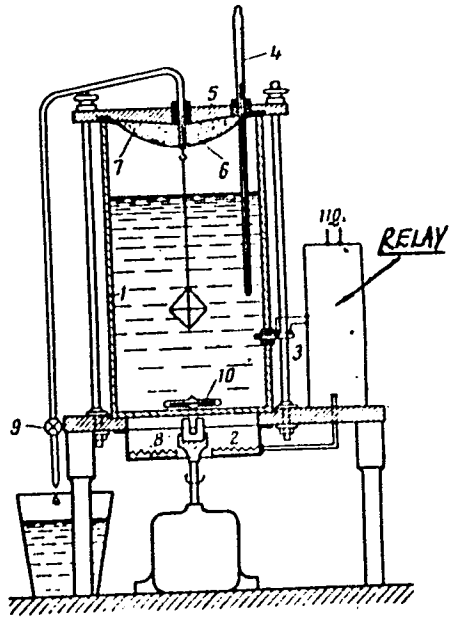

Fig 2

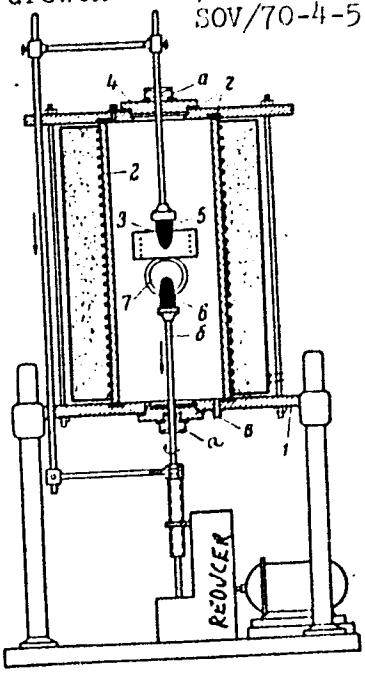

Fig 3

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briquet-holding shaft up or down. The heater of the protecting mantle melts the briquet gradually; the molten matter drops upon the crystal and provides its growth. The X-ray diffraction data proved that the grown crystals were monocrystals. There are 4 figures; and 3 Soviet references.

ASSOCIATION: Crystallographical Institute of the Academy of Sciences of the USSR (Institut kristallografii AN SSSR)

SUBMITTED: May 23, 1959

VITOVSKIY, B.V.; DOBRZHANSKIY, G.F.

Method for growing layers of modified composition on a crystal. Kristallografiia 9 no.4:579-580 Jl-Ag '64. (MIRA 17:11)

1. Institut kristallografii AN SSSR.

VITOVSKIY, B.V.; KEMTSOV, A.B.

Isothermic-surface fusion crystallization outside the heated zone. Trudy Inst.krist. no.9:349-352 '54. (MLRA 7:11)
(Crystallography)

VITOVSKIY, B.V.

Method for the calculation of rational angles of organic crystal face gradients. Trudy Inst.krist. no.9:367-378 '54. (MLRA 7:11)
(Crystallography, Mathematical)

VITOVSKIY, B. V.

K-5

Category : USSR/Optics - Physical optics

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 2373

Author : Vitovskiy, B.V., Anikin, I.N.
Title : On the Luminescence of Artificial NaCl and KCl Crystals with Various Activator Impurities

Orig Pub : Tr. In-ta kristallogr. AN SSSR, vyp. 11, 200-205, 1955

Abstract : An investigation was made of the lumineacence (L) of monocrystals of NaCl and KCl, activated by Mn or Cu by adding $MnCl_2$ or $CuCl_2$ to the melt. Tables of the colors and intensities of the L and the spectra of the L are given for excitation at 250, 280, 313, and 365 mμ. In the case of NaCl-Mn (0.025--10% Mn Cl_2) and KCl-Mn (0.1 -- 7.0% $MnCl_2$) the L spectrum shifts towards the longer waves with increasing Mn concentration, and in the case of KCl-Mn two maxima appear. NaCl-Mn has a brighter L than KCl-Mn, and has a maximum L intensity at 4--5% MnCl. In the presence of moisture, NaCl-Mn gives a bright orange glow. NaCl-Cu (0.012 -- 10% $CuCl_3$) and KCl-Cu (0.012--5% $CuCl_2$) have an azure-green and blue-violet glow when excited at 250 and 280 mu respectively. Increasing the Cu concentration shifts the maximum of the L spectrum of NaCl-Cu toward the shorter waves. The L of KCl-Cu is brighter than that of NaCl-Cu. The optimum content of $CuCl_2$ is 0.1% for both phosphors. An investigation was made of the L of NaCl and KCl, activated by Ti^+, Cu^+, Ag^+, Mn^{2+}, Pb^{2+}, and Mn^{4+} by thermoelectric diffusion from the anode into the crystal at 550° and 120 volts.

Card : 1/2

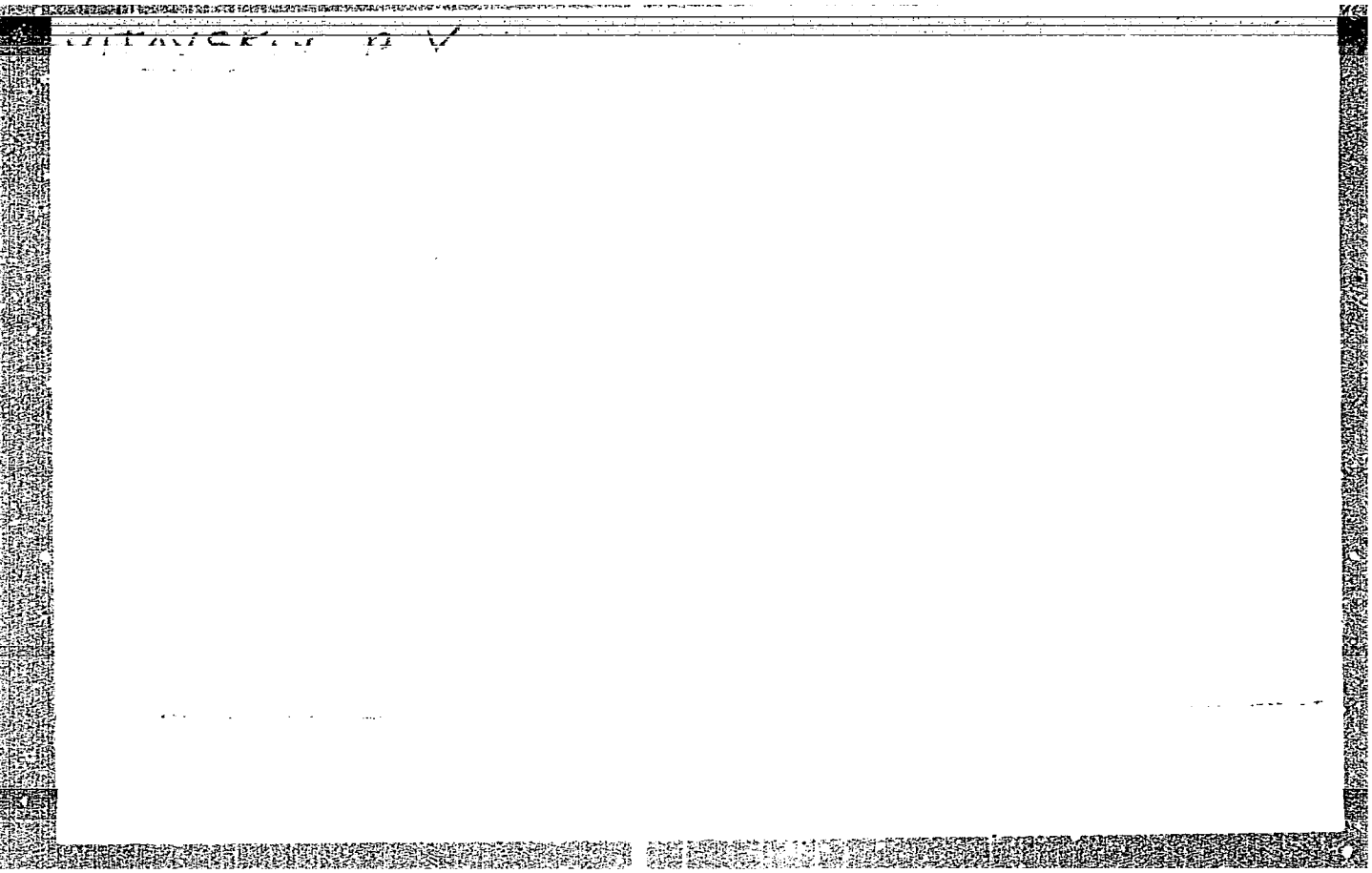
Category : USSR/Optics - Physical optics

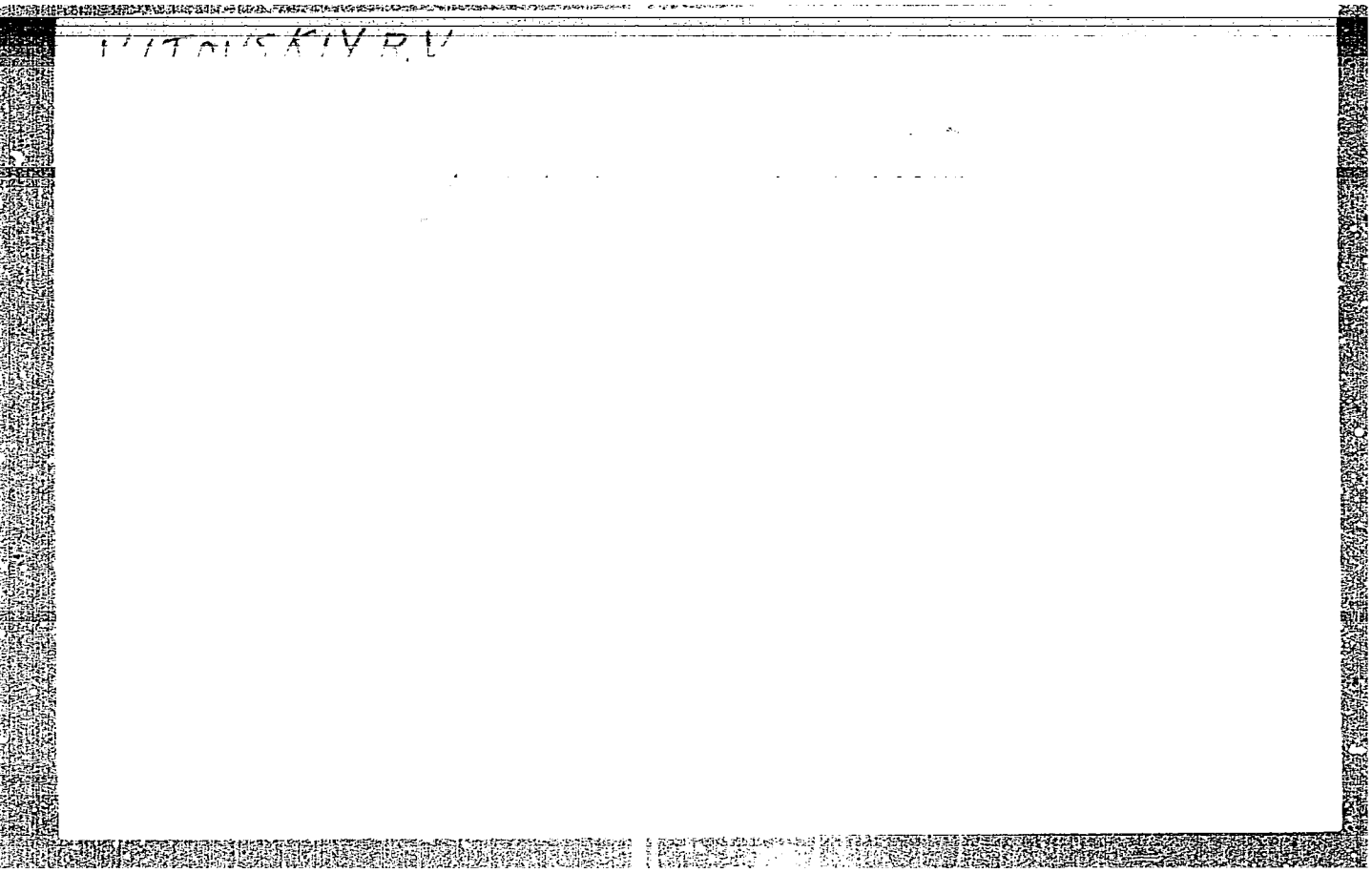
K-5

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 2373

A pronounced connection is seen between the brightness of the L and the radii of the base activator ions. If the radius of the activator ion is equal to or greater than the radius of the base cation, the activator will wither diffuse into the crystal with difficulty or will not diffuse at all, and the crystal will produce a weak glow.

Card : 2/2





24.7100

77127
SOV/70-4-6-28/31

AUTHORS: Vitovskiy, B. V., Tatarinova, L. I.

TITLE: Phenomena Observed on Photoemulsion and Glass at the Contact With Quartz (Preliminary Communication)

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 6, pp 931-933 (USSR)

ABSTRACT: The authors disclosed that a latent image on a film or plate disappears if a quartz crystal or plate has rested on it for a long time before development. The spot directly under quartz becomes completely regenerated. The degree of regeneration decreases with increased distance from quartz. Experimenting further, a film was exposed to light and left for 1 year partially covered with a round quartz plate. Then a drawing was photographed by contact printing. The circular part of the film, covered with quartz, proved to have restored its sensitivity completely, i.e., the photograph within this part was as clear as if taken on fresh film, while the parts beyond the quartz cover remained blank. Another photoplate, of which half had been exposed to

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Phenomena Observed on Photoemulsion and Glass at the Contact With Quartz (Preliminary Communication)

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SOV/70-4-6-26/31

light and the other half not exposed, was left covered with a quartz plate that had a pencil drawing. After development of the plate, its unexposed half did not show any radiation effect, proving that no radioactive substance was present in the quartz. The exposed half became regenerated, except below the pencil lines of the drawing, which consequently left its print within the exposed half of the plate. The authors also found that after a long rest quartz leaves a print on glass or any other clean subject. The prints having the same form as the regenerated spots on exposed films are formed by thin coating whose thickness gradually vanishes from the quartz covered spot toward the edge of the glass. The coating can easily be rubbed off with the fingers. The study of the coating matter by electron diffraction methods disclosed its cubic structure with a = 5.68 A. The interplanar spacings are the same as in α-cristobalite whose tetragonal unit cells have a = 4.90 A and c = 6.92 A. However, since the coating matter is cubic, it cannot be cristobalite. SiO is cubic with a = 5.16 A, but it is known to be unstable at low temperatures. Si is cubic with

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Phenomena Observed on Photoemulsion and Glass at the Contact With Quartz (Preliminary Communication) 77127 SOV/70-4-6-28/31

a = 5.42 A. Some of the electron diffraction photographs had many additional lines not yet identified. It is believed that the deposition of this coating matter causes regeneration of the exposed photofilms. A few more experiments that produced spotty coating of celluloid through circular holes furnished contradictory results. There are 5 figures.

ASSOCIATION: Crystallographical Institute of the Academy of Sciences, USSR (Institut kristallografii AN SSSR)

SUBMITTED: December 2, 1958

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ACCESSION NR: AP4043199 S/0070/64/009/004/0579/0580

AUTHOR: Vitovskiy, B. V.; Dobrzhanskiy, G. F.

TITLE: Method for growing layers of varied composition on a crystalline substrate

SOURCE: Kristallografiya, v. 9, no. 4, 1964, 579-580

TOPIC TAGS: single crystal growth, thin layer growth, melt crystal growth, solution crystal growth, crystal growth apparatus, cesium iodide crystal, manganese activated cesium iodide

ABSTRACT: A new method and apparatus are described for growing single crystal layers with periodically changing properties. The method would promote expansion in the technological application of crystals. Basically, the growth of crystal layers is achieved by short-time immersion of a seed crystal in a superheated melt or solution and subsequent transfer of the seed into the crystallization zone, in which it is retained for a period of time necessary for complete crystallization of the liquid layer. This double process

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ACCESSION NR: AP4043199

is performed in an electric resistance furnace with two separately controlled heaters. The transfer of the seed is accomplished by means of an eccentric device which transmits a reciprocating motion through a lever to the seed. The desired thickness is obtained by repeated immersions. Single crystal layers of Mn-activated cesium iodide were grown on cesium iodide crystals of various shapes and dimensions. Orig. art. has: 2 figures

ASSOCIATION: Institut Kristallografii AN SSSR (Institute of Crystallography, AN SSSR)

SUBMITTED: 25Jan64 ENCL: 00

SUB CODE: SS NR REF SOV: 001 OTHER: 000

Card 2/2

L 44006-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/GG

ACC NR: AP6029873 SOURCE CODE: UR/0413/66/000/015/0026/0026

INVENTOR: Vitovskiy, B. V.; Netesov, G. B.; Chernyshev, K. S.; Dobrzhanskiy, G. F.

ORG: none

31
B

TITLE: A method of growing single crystals. Class 12, No. 184246

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 26

TOPIC TAGS: single crystal, single crystal growing, homogeneous single crystal

ABSTRACT: This Author Certificate introduces a method of growing single crystals of substances which decompose at below-melting temperatures. The crystals are grown from a gaseous phase in a hermetically sealed ampoule moving in a furnace with preset temperature conditions. The crystals are grown with or without an oriented seed. Homogeneous single crystals are obtained by rotating the ampoule around its axis which coincides with the vertical axis of the furnaces and simultaneously moving it in upward direction. [MS]

SUB CODE: 20/ SUBM DATE: 22Mar65/ ATD PRESS: 5070

Card 1/1 blg UDC: 548.522

BELYAYEV, L.M.; VITOVSKIY, B.V.; DOBRZHANSKIY, G.F.; KARPENKO, A.G.

Modified crystallization tank. Kristallografiia 6 no.2:286-287 Mr-Ap '61. (MIRA 14:9)

1. Institut kristallografii AN SSSR.
(Crystallization)

VITOVSKIY, B.V.; TATARINOVA, L.I.

Phenomena observed on a photographic emulsion and on glass in contact with quartz. Kristallografiia 4 no.6:931-933 N-D '59. (MIRA 14:5)

1. Institut kristallografii AN SSSR.
(Photographic emulsions)
(Quartz)
(Glass)

S/070/61/006/001/010/011
E073/E335

AUTHORS: Karpenko, A.G., Belyayev, L.M., Vitovskiy, B.V. and Dobrzhanskiy, G.F.

TITLE: Crystalliser for Growing Crystals by the Evaporation Method

PERIODICAL: Kristallografiya, 1961, Vol. 6, No. 1, pp. 146 - 147

TEXT: In spite of numerous advantages of this method it has been relatively little used. Its main drawbacks are a decrease in the volume of the mother liquor during crystallisation, loss of solvent during evaporation (important in the case of poisonous or expensive solvents) and impossibility of obtaining a continuous process of crystallisation without having to fill the crystalliser with saturated solutions. The latter is particularly important in crystallising substances which are difficult to dissolve. The authors propose a design of crystalliser which enables continuous crystallisation by evaporation in a closed crystalliser without loss of the solvent, maintaining a constant level of the

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S/070/61/006/001/010/011
E073/E335

Crystalliser for Growing .....

mother liquor. The crystalliser does not require any pumping systems or any other forcing devices for maintaining a constant level and the desired degree of saturation of the solution. Transfer of the substance to be crystallised from the solution zone into the space where crystallisation takes place and maintenance there of the required saturation are by means of natural circulation, including evaporation of the solvent, its condensation, return of the condensate into the zone of solution of the substance and movement of the solution into the zone of crystal growth. The crystalliser, Fig. 1, is mounted on an electric heater and contains all the apparatus for maintaining and controlling the temperature. It consists of three coaxial vessels, fitted one inside the other, in such a way that the first (external) and the second (middle) intercommunicate at the top whilst the second and third (inner vessels) intercommunicate from the bottom. The edges of the first and third vessels should be above the level of the mother liquor, whilst the edge of

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Crystalliser for Growing .....

the second is a few cm below the level of the mother liquor. The first vessel is intended for dissolving the crystallised substance and for receiving the condensate. It also serves as a settling vessel and a thermostat. The second vessel serves as a carrier of the solution and has a seal preventing the falling of germinations from the zone of dissolution into the crystalliser. The third (internal) vessel is the crystalliser. The communication between the lid of the crystalliser and the first cylinder is by means of a ground surface. In a crystalliser of this design, a "continuous" complicated cycle of mass transfer from one state into another takes place. The crystalliser is filled with a solution which is saturated at a given temperature. The degree of filling can be seen from Fig. 1. At the bottom, between the walls of the first and the second vessels, the excess material is fed in which is considerably greater than the weight of the crystal to be produced. The geometric dimensions of the vessels are so chosen as to obtain an evaporation surface in

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Crystalliser for Growing .....

the first and the second vessels, which is considerably smaller than the surface in the third vessel. During operation of the crystalliser condensation of the solvent will occur at the inner surface of the lid and the top part of the first vessel. The lid is made semispherical or conical so as to ensure that the condensate returns only into the first vessel where dissolution of the recrystallised substance takes place as a result of continuous inflow of solvent. Since the vessels intercommunicate, a constant hydrostatic level difference is maintained, which is governed solely by the difference in the density of the solution in the first and third vessels and in the system as a whole constant concentration flows will establishe themselves, as shown by arrows in Fig. 1. The solvent evaporated from the third vessel is replaced by a quantity of solution of equal mass from the first vessel. In this way, there will be a continuous transfer of the crystallising substance from the solution zone into the

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Crystalliser for Growing .....

crystalliser, as a result of which a constant saturation is maintained in the crystalliser. The specific degree of saturation will become established at a given temperature which hardly changes at all with the growth of the crystal. Under otherwise equal conditions the degree of saturation and consequently the speed of growth of the crystal is controlled by changing the temperature of the solution. Furthermore, equipment can be designed which permits changing (increasing in the case of a positive temperature coefficient of the solubility) the evaporation surface of the first and the second vessels in accordance with a given programme. The temperature field of the crystalliser has a small gradient directed from the bottom upwards. The thermal effects of the reactions in the system are localised and can be easily taken into consideration. Mechanical mixing of the solution in the crystalliser is by means of a magnetically actuated mixer. The reliability of the described crystalliser was verified under laboratory conditions for a number of substances,

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Crystalliser for Growing .....

including substances of low solubility. Figure 2 gives a photograph of the equipment. There are 2 figures and 1 Soviet reference.

ASSOCIATION: Institut kristallografii AN SSSR
(Institute of Crystallography of the AS USSR)

SUBMITTED: May 26, 1960

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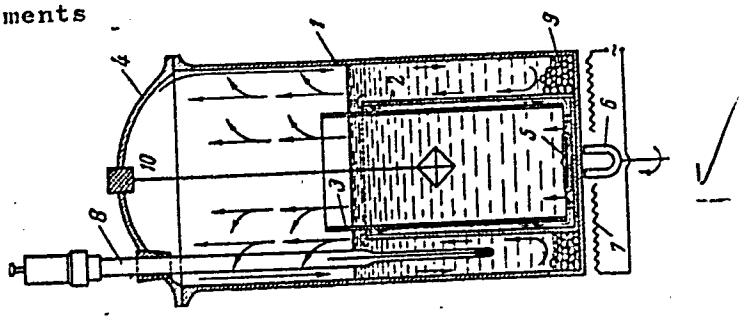
E073/E335

Crystalliser for Growing .....

Fig. 1:

1 - first (external) vessel
2 - second (middle) vessel
3 - third (internal) vessel
4 - lid
5 - magnetic mixer
6 - magnet
7 - electric heating elements
8 - contact thermometer
9 - substance to be crystallised
10 - germination



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Crystalliser for Growing .....

Fig. 2:

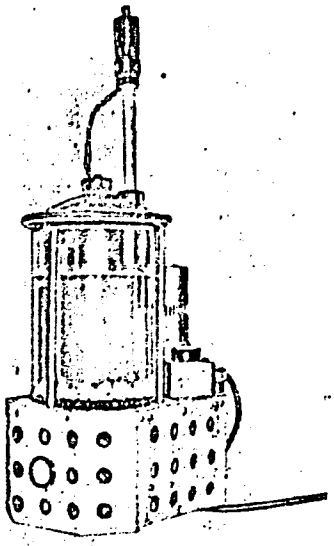

Рис. 2

Card 8/8

57-28-3-4/33

AUTHORS: Vitovskiy, N. A., Maleyev, P. I., Ryvkin, S. M.

TITLE: The Mechanism of Pulse Formation in Crystal Counters at the Formation of a "Through Conducting Channel" (Mekhanizm formirovaniya impul'sov v kristallicheskikh schetchikakh pri obrazovanii "skvoznogo provodyashchego kanala")

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 3, pp.460-469 (USSR)

ABSTRACT: The authors here investigate the peculiarities of the mechanism of pulse formation for the case where the ionization range extends from one electrode to the other. As ionizing agent the authors used α-particles of polonium (Po^{210}) with an energy of 5,3 MeV. In order to realize a "through" passage of the α-particles through the samples, thin CdS--monocrystals were selected. The investigations showed that the process of pulse formation according to the "through current" system may take place at least in two different forms. 1) The first variant can be realized by the construction with a one-sided application of the electrodes or in

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The Mechanism of Pulse Formation in Crystal Counters at the Formation of a "Through Conducting Channel"

thick crystals with electrodes applied on both sides. Here a through current which is limited by the resistance of the "dark sections" of the crystal flows in the pulse. In such a counting arrangement the "dark"-conductivity of the crystal plays the decisive part. A considerable increase in the pulse height can in this process be attained by an increase in σ ("dark"conductivity), e.g. by a rise of temperature. 2) The second variant can only be observed in sufficiently thin crystals in the case of "two-sided" application of electrodes. Here the passage of the α-particles through the crystal can take place and a "conducting channel" between the electrodes can be formed. The pulse height is in this case not dependent on the initial conductivity of the sample. It is to be expected that a similar mechanism of pulse formation will even occur in the case of some isolating crystals, in case the life of the current carriers not being in equilibrium in them (i.e. the crystals) will not be too small and electrodes forming anti-barrier--layers are selected. The authors performed an experimental investigation of the process of pulse formation in "thin" counters at the formation of a "conducting channel". It is

The Mechanism of Pulse Formation in Crystal Counters at the Formation of a "Through Conducting Channel"

shown that in such a case the simplest variant for the formation of pulses can be realized according to the scheme of the passing current. The obtained experimental results are in good agreement with the prediction of theory. The high quality (from the point of view of pulse-height) of the counters with thin crystals and"two-sided" applied electrodes is pointed out. In this construction the pulse heights attain 20 V and amount to up to 90 % of the voltage applied. There are 11 figures, 1 table, and 3 references, 3 of which are Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Leningrad Physical-Technical Institute AS USSR)

SUBMITTED: November 20, 1957

1. Crystal counters--Analysis

Vitovskiy, N. A.

24(4) PHASE I BOOK EXPLOITATION SOV/3140

Akademiya nauk Ukrainskoy SSR. Institut fiziki

Fotoelektricheskiye i opticheskiye yavleniya v poluprovodnikakh; trudy pervogo vsesoyuznogo soveshchaniya po fotoelektricheskim i opticheskim yavleniyam v poluprovodnikakh, g. Kiyev, 20-26 noyabrya 1957 g (Photoelectric and Optical Phenomena in Semiconductors; Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Prezidium. Komissiya po poluprovodnikam.

Ed. of Publishing House: I. V. Kisina; Tech. Ed.: A. A. Matveychuk; Resp. Ed.: V. Ye. Lashkarev, Academician, Ukrainian SSR, Academy of Sciences.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutes of higher technical training specializing in the physics and technical application of semiconductors.

COVERAGE: The collection contains reports and information bulletins (the latter are indicated by asterisks) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide scope of problems in semiconductor physics and technology are considered: photoconductivity, photoelectromotive forces, optical properties, photoelectric cells and photoresistors, the actions of hard and corpuscular radiations, the properties of thin films and complex semiconductor systems, etc. The materials were prepared for publication by E. I. Rashboy, O. V. Snitko, K. B. Tolpygo, A. F. Lubchenko, and M. K. Sheynkman. References and discussion follow each article.

Photoelectric and Optical Phenomena (Cont.) SOV/3140

Card 15/16

VITOVSKIY, N.A.; MALEYEV, P.I.

Measurement of the length of the diffusion path of holes in cadmium sulfide. Fiz. tver. tela 1 no.6:984-985 Je '59. (MIRA 12:10)

1.Leningradskiy fiziko-tekhnicheskiy institut AN SSSR.
(Cadmium sulfide) (Photoelectricity)

67393
SOV/181-1-9-11/31

24.7700
~~24(6), 21(8)~~
AUTHORS: Vitovskiy, N. A., Mashovets, T. V., Ryvkin, S. M.

TITLE: Determination of the Number of Acceptor Levels of Defects Occurring in Germanium Under the Action of Gamma Irradiation

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 9, pp 1381 - 1387 (USSR)

ABSTRACT: The radiation-induced formation of structural defects stable at room temperature had already been investigated several times, but not all the problems related therewith are as yet solved satisfactorily. The present paper offers a contribution by discussing the possibilities of a complete analysis of the energy levels of the defects and by publishing experimental results concerning the temperature dependence of the Hall coefficient R of n-type germanium irradiated by Co^{60} γ-rays. An analysis of these results permits a precise determination of the number of acceptor levels belonging to one γ-radiative defect. To investigate the temperature dependence of the carrier concentration in the presence of multiple-charged centers, the authors theoretically investigated a level scheme of a defect (Fig 1), with n in the conduction band considered to be composed of four parts (Fig 2a). In this connection the

Card 1/3

Determination of the Number of Acceptor Levels of Defects Occurring in Germanium Under the Action of Gamma Irradiation

following was assumed: every defect produced by radiation has 1 acceptor- and k donor levels; "ordinary" donors (atoms of the V group) and M defects exist in such a way in germanium with the concentration N_d, that $N_d > Ml$. n_1 : n rises weakly in consequence of transitions of electrons from donor levels to the conduction band; n_2: full ionization of the donor levels, $n_2 = N_d - Ml\ n_3$: stronger rising of n in consequence of transitions of electrons from higher defect levels to the conduction band $n_3 = \sqrt{N_c M}\ e^{-\Delta E_{M_1}/2kT}$ n_4: full ionization of the upper levels, $n_4 = N_d - N(1-1)$. The temperature dependence of n can thus be represented by the function $\lg n = f(\frac{1}{T})$ (theoretically in Fig 2a, experimentally in 2b). A table gives the results of several measuring series. It is found that for γ-induced defects $1 = 4$, with ΔE_{M_1} being 0.18 ev. The defect formation cross section was found to be $\sigma \approx 4.0 \cdot 10^{-27}\ cm^2$, i.e.

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67393

Determination of the Number of Acceptor Levels of Defects SOV/181-1-9-11/31
Occurring in Germanium Under the Action of Gamma Irradiation

Directives for further investigations are briefly shown. Finally, the authors thank B. M. Konovalenko and I.D.Yaroshetskiy for exposure of the samples and Sh. M. Mirianashvili for his assistance in measurements. There are 2 figures, 1 table, and 3 references, 1 of which is Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Leningrad Institute of Physics and Technology of the AS USSR)

SUBMITTED: March 24, 1959

Card 3/3

66706

9.4160

AUTHORS: Vitovskiy, N.A., Maleyev, P.I. and Ryvkin, S.M. SOV/109-4-8-27/35

TITLE: Optimum Operating Conditions for the Photo-diodes Used With Small Signals

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 8, pp 1387 - 1392 (USSR)

ABSTRACT: The characteristic of a photo-diode can be expressed by (Ref 2):

$$I = I_s\left(e^{\frac{q\varphi}{kT}} - 1\right) + I_f + \frac{\varphi}{R'} \qquad (5)$$

where I is the current flowing through the photo-diode, R' is the leakage resistance of the diode and φ is the voltage across the n-p junction. I_s is the "dark" saturation current, q is an electron charge, k is the Boltzmann constant and T is the absolute temperature. Eq (5) was employed to plot the voltage-current characteristics shown in Figure 1. Curves I_{T1} and I_{T2} show the "dark" characteristics at temperatures

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4

Optimum Operating Conditions for the Photo-diodes Used With Small Signals

of +20 °C and -78 °C, while Curves I_{f1} and I_{f2} are the "illumination" characteristics at the same temperatures. The curves are calculated for a photo-diode which has a "dark" current of 8 μA and the resistance $R' > 10^8\ \Omega$ at room temperature. The quantity R_o is represented by ctg α, where α is the slope of the "dark" current-voltage characteristics at $\varphi = 0$. This angle α_2 at the room temperature is equal to 90 °, while at low temperatures $\alpha = \alpha_1$ and tends to zero. If the device works as a photo-diode with a load characteristic $R = \text{ctg}\ \beta$, the load line intersects the characteristics I_T and I_f in the saturation region; consequently, at both the low and the room temperatures, the output signal taken from the device is the same. On the other hand, if the diode is operated as a photo-electric source, the intersection of the load line with the characteristic occurs in the saturation region only at the low temperature.

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Optimum Operating Conditions for the Photo-diodes Used with Small Signals

In this case, again, the output signal is equal to that obtainable in the photo-diode operation. From the above, it follows that the photo-diode can be operated as a photo-electric source, provided it is maintained at a low temperature. Under these conditions, it should be expected that the noise level would be very low. The above conclusion was checked experimentally. The principal experimental characteristic was the relative sensitivity P which was defined as the ratio of the output signal obtained from the device as a photo source and as a photo-diode. This ratio can be defined by Eq (10). The experimental dependence of P on temperature is shown by the solid curve in Figure 3. The dependence of P on temperature for large signals is illustrated by the obtained line in Figure 3. The noise in the device when employed as a photo-diode was 0.5 mV, while when used as a photo-electric source, the noise was 10 μV. The inertia effects in the diode are illustrated in Figure 5, where the first oscillogram refers to the photo-diode operation, while the

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Optimum Operating Conditions for the Photo-diodes Used with Small Signals SOV/109-4-8-27/35

next four oscillograms show the photo-electric response at various temperatures; this effect is further illustrated in Figure 4, which shows that provided the temperature is about -80 °C, the time constant of the device is the same for both the photo-diode and photo-electric operation. There are 5 figures, 1 table and 7 Soviet references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physico-engineering Institute of the Ac.Sc.USSR)

SUBMITTED: June 4, 1958

Card 4/4

21401

9.6150 (incl. 2705)
24.6810

S/120/61/000/002/012/042
E210/E594

AUTHORS: Vitovskiy, N. A., Maleyev, P. I., Matveyev, O.A., Ryvkin, S.M. and Tarkhin, D. V.

TITLE: Silicon N-P Counters of Heavy Charged Particles Operating Without an External Power Supply

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.2, pp.82-83

TEXT: Fused silicon diodes having an n-p junction area of about 1 mm^2 have been studied in order to determine their counting properties when operated as short-circuited rectifiers. The saturation current in the counters studied was not over 0.1 μA; the leakage resistance was several megohms. Under such conditions, short-circuit current rectification can be realized by using a 250 kilohm load. In counters irradiated with α-particles under the above conditions and tested at room temperature, pulse amplitudes reached 2-3 mV with practically no noise. This performance equals that of counters operating as photodiodes, but the noise in the latter case increases rapidly with increasing cut-off voltage. In both cases (operating as rectifiers or photodiodes) pulse rise time varies from 1 to 5 μsec. The decay time is determined by the R-C of the circuit. This is shown in the oscillograms, Fig.1. In

Silicon N-P Counters of ...

S/120/61/000/002/012/042
E210/E594

Fig.1a the duration of the markers is 1 μsec. Fig.1б - leading edge of the pulse; marker duration 0.2 μsec. Trigger delay 0.5 μsec. With decreasing temperature the pulse amplitude and duration remain unchanged. Silicon n-p counters are regarded as highly promising since even at room temperature they can operate as photovoltaic cells without an external power supply.
Comments made during the proof-reading: The here described counters show considerable variance in the amplitudes of the pulses during the counting of monochromatic particles, i.e. they are not suitable for spectrometry. At present, the laboratory of the authors manufactures surface-barrier silicon counters which are suitable for spectrometry (amplitude resolution less than 1% for α-particles with energies of 5.5 MeV). The considerations presented in the paper are in principle applicable also for such spectrometric n-p counters. There are 1 figure and 3 Soviet references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physico-technical Institute AS USSR)

SUBMITTED: February 20, 1960

Card 2/3

VITOVSKIY, N.A.; MASHOVETS, T.V.; RYVKIN, S.M.; SONDAYEVSKIY, V.P.

Energy spectrum of defects arising in Ge under the effect of gamma radiation. Fiz. tver. tela 3 no. 3:998-1001 Mr '61. (MIRA 14:5)

(Crystals—Defects) (Germanium) (Gamma rays)

VITOVSKIY, N.A.; MALEYEV, P.I.; MATVEYEV, O.A.; RYVKIN, S.M.; TARKHIN, D.V.

Silicon n-p counters of heavy charged particles operating without sources of power supply. Prib. i tekh. eksp. 6 no.2:82-83 Mr-Ap '61 (MIRA 14:9)

1. Fiziko-tekhnicheskiy institut AN SSSR.
(Nuclear counters)

VITOVSKIY, N.A.; LUKIRSKIY, D.P.; MASHOVETS, T.V.; RYVKIN, S.M.

Energy spectrum of certain impurity atoms in germanium and silicon. Fiz. tver. tela 4 no.3:816-817 '62. (MIRA 15:4)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR, Leningrad. (Semiconductors) (Lattice defects)

VITOVSKIY, N.A.; LUKIRSKIY, D.P.; MASHOVETS, T.V.; MYAKOTA, V.I.

Energy spectrum of defects in silicon caused by electron irradiation. Fiz. tver. tela 4 no.5:1140-1145 My '62. (MIRA 15:5)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR, Leningrad.

(Silicon crystals--Defects)
(Radiation)

44144

S/181/62/004/010/032/063
B108/B104

24600

AUTHORS: Vitovskiy, N. A., Mashovets, T. V., and Ryvkin, S. M.

TITLE: The energy spectrum of the gamma radiation defects in silicon

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1962, 2845-2848

TEXT: The temperature dependence of the Hall constant was studied on n- and p-type silicon samples before and after their exposure to Co^{60} gamma radiation. Irradiation ($1.4 \cdot 10^{17}$ quanta/cm^2; $1.15 \cdot 10^{18}$ quanta/cm^2) reduced the conductivity of silicon. The measurements carried out in the range 55-450°K showed, that irradiation gives rise to two levels in the upper half of the forbidden band that are capable of accepting electrons: E_c - 0.18 ev and E_c - 0.5 ev. The production cross-sections of these levels are approximately $1.4 \cdot 10^{-26}$ cm^2 and $1.8 \cdot 10^{-27}$ cm^2, respectively. In the lower half of the forbidden band there was one level (E_v + 0.23 ev) with a production cross-section of about $1.2 \cdot 10^{-27}$ cm^2. There are 2 figures and 2 tables.

Card 1/2

The energy spectrum of the gamma... S/181/62/004/010/032/063
B108/B104

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: May 30, 1962

Card 2/2

S/181/62/004/010/033/063
B102/B112

AUTHORS: Vitovskiy, N. A., Mashovets, T. V., and Ryvkin, S. M.

TITLE: Determination of the activation energy of impurity center levels and of structural defects in semiconductors

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1962, 2849 - 2853

TEXT: A study was made of the temperature dependence of the carrier concentration in semiconductors with impurities and defects, the spectra of which are complicated by their being several types of levels. According to measurements log $n = f(1/T)$ is, in this case, a complicated curve comprising plateaus of different lengths and sections with different inclinations. The activation energy of all possible levels is calculated to obtain a quantitative theoretical description. For simplicity a semiconductor is considered having two levels in the forbidden band. At absolute zero one of them should be partially filled with electrons, and the other should be filled completely (Fig. 2). The results can then be generalized for an arbitrary number of levels. If, in the entire temperature range the relation $\Delta E_2 - \Delta E_1 \gg kT$ is valid where ΔE_i are the level activation energies,

then the neutrality condition of the system can be given by

$$N_c e^{\frac{\varepsilon_F}{kT}} = m_1 - \frac{M_1}{1+\gamma_1 e^{-\frac{\Delta E_1+\varepsilon_F}{kT}}} + \frac{M_2}{1+\frac{1}{\gamma_2}e^{\frac{\Delta E_2+\varepsilon_F}{kT}}}, \quad (1);$$

the solution is

$$n = \frac{m_1 - \gamma_2 N_{cN_2}}{2} \pm \frac{1}{2}\sqrt{(\gamma_2 N_{cN_2} - m_1)^2 + \gamma_2 4 N_{cN_2}(M_2 + m_1)}; \quad (5).$$

$$N_{cN_1} \equiv N_c e^{-\frac{\Delta E_1}{kT}}.$$

The curve log n = f(1/T) is divided into 6 sections (2 plateaus, 2 sloping and 2 transition sections), n is calculated for each section and the state density is studied. With the aid of

$$\Delta E_2 = \frac{d\lg n}{d\left(\frac{1}{T}\right)} \frac{2.3 \cdot 2k}{\left[1 - \frac{m_1}{\sqrt{(m_1 + M_2)m_1}}\right]} - \frac{3}{2}kT. \quad (9)$$

Card 2/4 * Error in original

Determination of the...

ΔE_2 can be determined experimentally from the high-temperature inclined section, if m_1 and (M_2+m_1) in the point $\gamma_2 N_{cM_2} = m_1$ is determined from

$$n = \sqrt{(m_1 + M_2)\gamma_2 N_{cM_1}} = \sqrt{(m_1 + M_2) m_1}. \qquad (7)$$

and $d(\log n)/d(1/T)$ is determined from the curve. The statistical weights γ_1/γ_2 of the levels need not be known but γ_2 can be calculated from (7). These relations are valid if $M_2 \lesssim m_1$. If $M_2 \gg m_1$ then the activation energy can be calculated directly from the inclination of the curve with the aid of

$$\frac{d \lg n}{d\left(\frac{1}{T}\right)} = -\frac{1}{2}\left(\frac{\Delta E_2}{k} + \frac{3}{2} T\right), \qquad (11).$$

This is calculated for a practical case. Finally, a further possibility is pointed out of calculating ΔE_2 from the temperature dependence of the carrier density: the curve $\log(n-m_1) = f(1/T)$ can be constructed and the

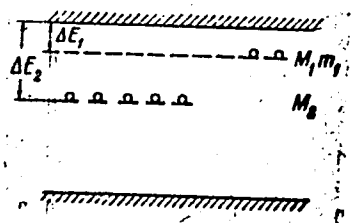
Card 3/4

tangent whose inclination gives the activation energy directly can be drawn at the point corresponding to Eq. (7). N_c denotes the effective state density in the conduction band, M_i are the level concentrations and m_1 is the electron concentration on the M_1 level. There are 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: May 30, 1962

Fig. 2



L 13809-63 EWP(q)/EWT(m)/FDS AFFTC/ASD JD

ACCESSION NR: AP3003878 S/0181/63/005/007/1833/1841

AUTHOR: Vitovskiy, N. A.; Konovalenko, B. M.; Mashovets, T. V.; Ryvkin, S. M.; Yaroshetskiy, I. D.

TITLE: Gamma-ray-generated defects in germanium

SOURCE: Fizika tverdogo tela, v. 5, no. 7, 1963, 1833-1841

TOPIC TAGS: gamma-ray semiconductor irradiation, radiation defect, nonopolar annealing, bipolar annealing, germanium irradiation, germanium defect, germanium

ABSTRACT: In the latest stage of research on the subject, dating back to 1959, a large number of n- and p-type specimens was investigated. N-type germanium was doped with antimony and had a donor concentration between $2 \cdot 10^{12}$ to $8 \cdot 10^{15}$ cm^{-3}; p-type germanium was doped with gallium and had an acceptor concentration between 10^{12} to 10^{15} cm^{-3}. The source was Co^{60} at a dosage of $2 \cdot 10^{11}$ $kv/cm^2 \cdot sec$ and temperature of 10C. The work was aimed at clarifying the saturation of irradiated specimens which occurs after polarity reversal, whereby further exposure to radiation, however prolonged, no longer affects the slope of the thermal dependence of carrier concentration. The latter remains equal to the activation energy. While the saturation process is evident up to very high concentrations

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L 13809-63

ACCESSION NR: AP3003878

2

of radiation defects, a substantially different situation is obtained in monopolar annealing of interstitial atoms, ultimately leading to a variety of limiting states of specimens exposed to gamma radiation. A bipolar annealing effect occurring during the irradiation process is considered responsible for the drop in the defect-formation rate with increased dosage of radiation. Both monopolar and bipolar annealing effects were found above room temperature. "The authors are indebted to S. R. Novikov for interesting discussions." Orig. art. has: 9 figures.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR (Leningrad Physicotechnical Institute, AN SSSR)

SUBMITTED: 31Jan63 DATE ACQ: 15Aug63 ENCL: 00

SUB CODE: PH NO REF SOV: 006 OTHER: 003

Card 2/2

VITOVSKIY, N.A.; MASHOVETS, T.V.; RYVKIN, S.M.; KHASEVAROV, R.Yu.

Change of the electric and photoelectric properties of gallium arsenide irradiated by 1 Mev. electrons. Fiz. tver. tela 5 no.12:3510-3523 D '63. (MIRA 17:2)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR, Leningrad.

AUTHORS: Vitovskiy, N. A.; Mashovets, T. V.

TITLE: A possible method of precise determination of activation energies of impurity levels and defects in semiconductors

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1658-1664

TOPIC TAGS: activation energy, impurity level, defect, semiconductor, hall coefficient

ABSTRACT: The authors suggest a method of determining the activation of impurity

L 10791-65 [illegible]
ACCESSION NR: AP4039649

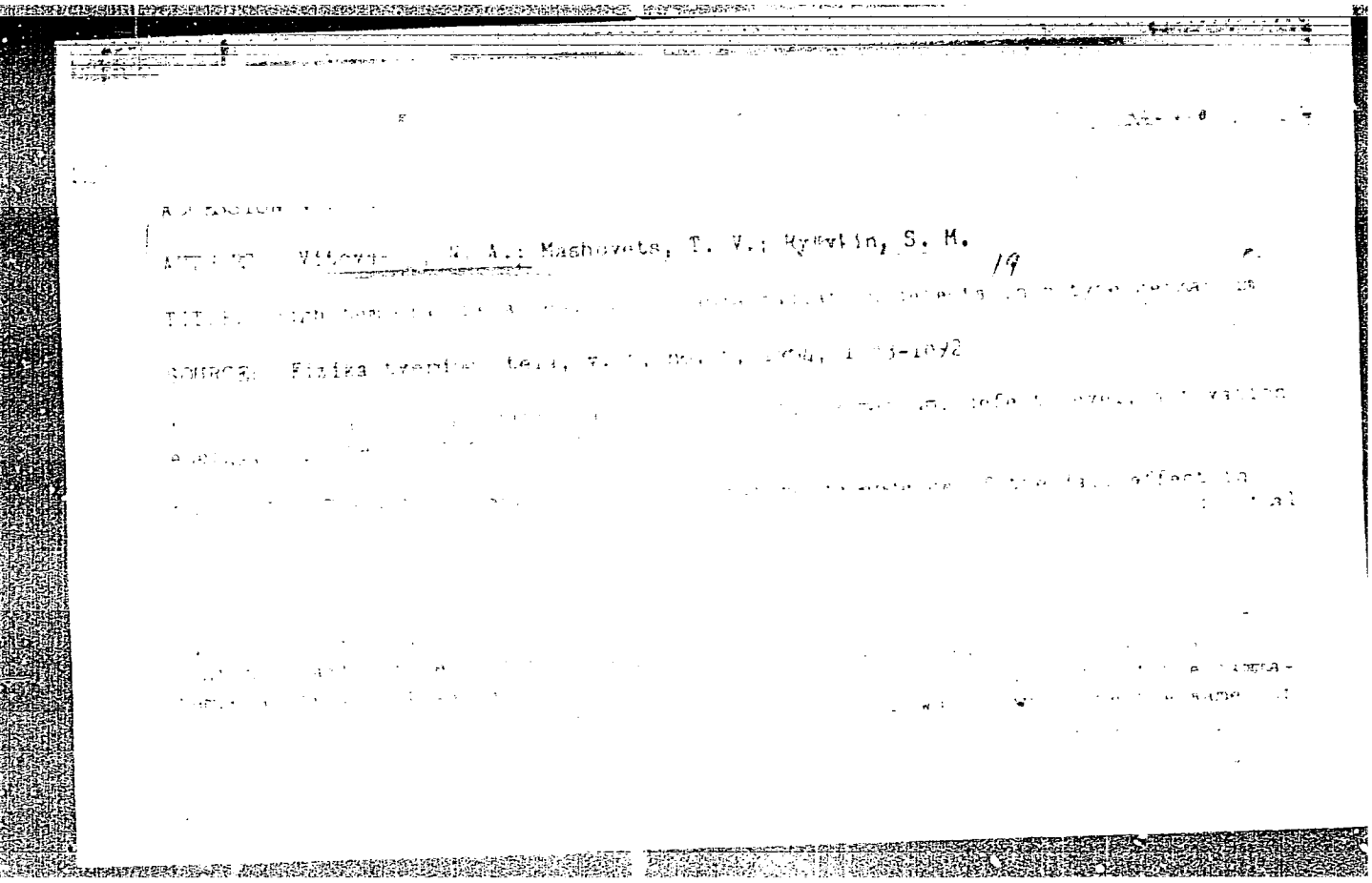
the conditions

$$P_v e^{[illegible]} [illegible] m_0 [illegible]$$

$$P_v e^{[illegible]} [illegible] \frac{m_0^2}{4(M - m_0)} [illegible]$$

(where P_v is the effective density of states in the valence band, M is the [illegible]en-
tration of centers belonging to the [illegible] level [illegible]

[illegible]



LOU, for making a number of [illegible]
and 1 formula.

TREKALO, B.K.; YAKUBTSINER, N.M.; ANDRONOV, V.N.; GRIGOR'YEVYKH, G.F.; KAYLOV, V.D.; SHUR, A.B.; v rabote prinimali uchastiye: NEVMERZHITSKIY, Ye.V.; SHOLENINOV, V.M.; VITOVSKIY, V.M.; GRINBERG, D.L.; GUTMAN, E.Ye.; YEGOROV, N.D.

Open-hearth furnace operations with classified sinter. Stal' 20 no. 12:1063-1070 D '60. (MIRA 13:12)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii i Cherepovetskiy metallyrgicheskiy zavod.
(Blast furnaces) (Sintering)

LEVIN, L.Ya.; VANCHIKOV, V.A.; SHUR, A.B.; KAYLOV, V.D.; BYALYY, L.A.; Prinimali uchastiye: RUSAKOV, P.G.; ANTONOV, V.M.; KOSTROV, V.A.; KOTOV, A.P.; YEGOROV, N.D.; BUGAYEV, K.M.; SOLODKOV, V.I.; YASHCHENKO, B.F.; KOREGIN, A.V.; SAPOZHNIKOV, N.P.; TSUKANOV, V.N.; VITOVSKIY, V.M.

Mastering the operation of high-capacity blast furnaces. Stal' 23 no.9:773-778 S '63. (MIRA 16:10)

TEMLIK, O., inz; VITOVSKY, J.

Measurement of the temperature of material and extraction of flue gases in rotary kilns. Stavivo 41 no.10:369-373 O '63.

1. Vyvojove oddeleni HCV, Hranice.

TEMLIK, O., inz.; VITOVSKY, J.

Automatic grinding control in tube mills. Stavivo 41 no.11: 394-395 N'63.

1. Vyvojove oddeleni, Hranicka cementarna, Hranice.

TEMLIK, O., inz.; VITOVSKY, J.

Apparatus for automatic measurement of the fineness of cement.
Stavivo 42 no.11:403-406 N '64.

1. Development Department of the Hranicka cementarna a vapenice National Enterprise, Hranice.

MILOV, B.G., doktor tekhn.nauk; VITOVTOVA, M.I., nauchnyy sotrudnik; STRUNNIKOV, N.A., inzh.

Digestion of woodpulp for fine capacitor paper. Bum.prom. 37 no.1:17-19 Ja '62. (MIRA 15:1)

1. Moskovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta tsellyulozno-bumazhnoy promyshlennosti (for Milov, Vitovtova). 2. Sul'fatno-tsellyuloznyy zavod "Pitkyaranta" (for Strunnikov).

(Woodpulp)
(Paper products)

KORCHEMKIN, F.I.; VITOVTOVA, M.I.

Film formation during the conversion of the paper stock to parchment. Bum.prom. 38 no.1:17-18 Ja '63. (MIRA 16:2)

1. Moskovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta tsellyulozno-bumazhnoy promyshlennosti.
(Paper)

VITOZ, Rono

Surname (in caps); Given Names

Country: / not given /

Academic Degrees: Dr.

Affiliation: Director of the International Organization for Epizooties

Source: Belgrade, Veterinarski glasnik, No 7, 1961, pp 547-554.

Data: "Activity of the International Organization for Epizooties and the Role of Yugoslavia in the Activity of the Organization."

ACC NR: AP6015713 (A,N) SOURCE CODE: UR/4013/66/000/009/0126/0126

INVENTOR: Vasil'yev, D. P.; Vitozhents, E. V.; Chernetsov, I. B.; Berlin, V. B.; Mosenkov, V. N.

ORG: None

TITLE: Direct rpm controller for low-power gas turbine engines. Class 46, No. 181448 [announced by the Central Scientific Research and Design Institute of Vehicle and Stationary Engine Fuel Equipment (Tsentral'nyy nauchno-issledovatel'skiy i konstruktorskiy institut toplivnoy apparatury avtotraktornykh i statsionarnykh dvigateley)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 126

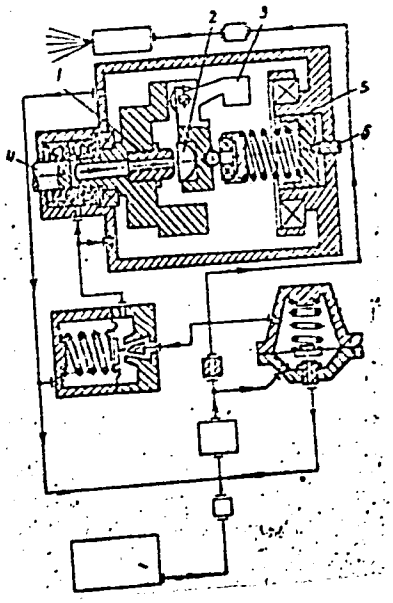
TOPIC TAGS: speed regulator, gas turbine engine

ABSTRACT: This Author's Certificate introduces: 1. A direct rpm controller for low-power gas turbine engines. The unit contains an actuating mechanism made in the form of a nozzle which interacts with a flat valve located in the arm of a balanced spring-loaded centrifugal weight mounted on the cross connection of the power shaft. Construction is simplified and friction is reduced by locating the nozzle and the fuel channel in the power shaft. 2. A modification of this device which may be adjusted during engine operation by using a spring which acts on a lever and is equipped with a screw for varying tension.

UDC: 621.438-531.6-552.9

Card 1/2

ACC NR: AP6015713



1--nozzle; 2--flat valve; 3--weight;
4--power shaft; 5--spring; 6--screw

SUB CODE: 13, 21/ SUBM DATE: 04May64

Card 2/2

BERZIN, A. K.; VITOZHENTS, G. Ch.; SULIN, V. V.; SHORNIKOV, S. I.

"Gamma-activation analysis of rock samples."

report presented at Symp on Radiochemical Methods of Analysis, Salzburg, Austria, 19-23 Oct 64.

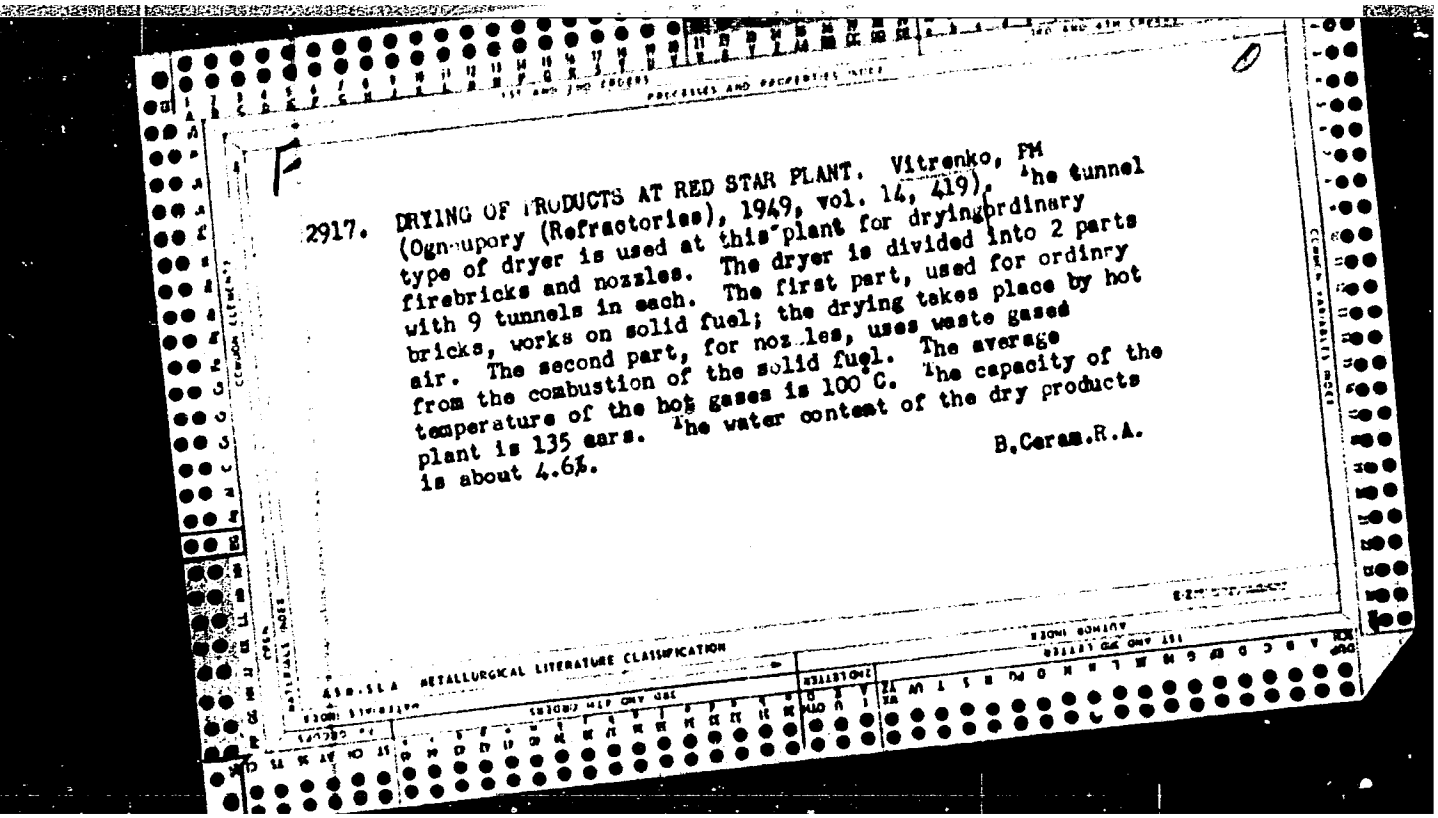
VITRENKO, P.M.

Introduction of the "Kema" conveyor belt vacuum power presses at the Konstantinov refractory materials plant. Ogneupory 20 no.7: 326-327 '55. (MLRA 9:1)
(Power presses) (Firebrick)

VITRENKO, P. M.

29083-Sushka Izdeliy Na Zavode ((Krasnaya Zvezda)). Ogneupory, 1949, No. 4, s. 418-21

SO: Letopis' Zhurnal'nykh STatey, Vol. 39, Moskva, 1949



2917. DRYING OF PRODUCTS AT RED STAR PLANT. Vitrenko, PM (Ogneupory (Refractories), 1949, vol. 14, 419). The tunnel type of dryer is used at this plant for drying ordinary firebricks and nozzles. The dryer is divided into 2 parts with 9 tunnels in each. The first part, used for ordinry bricks, works on solid fuel; the drying takes place by hot air. The second part, for nozzles, uses waste gases from the combustion of the solid fuel. The average temperature of the hot gases is 100°C. The capacity of the plant is 135 cars. The water content of the dry products is about 4.6%.

B.Ceram.R.A.

38078. VITRENKO, P. M.

Povyshenie proizvoditel'nosti trubchatogo kalorifero na zavode krasnaya zvezda. Ogneupory, 1949. No. 12, s. 553-55.

VIT[illegible] K., P. L.

29083

Sueha Ledyeliy Na Lavoaye "Krasnaya Zvezda". Sovyetskaya Ky, 1949, No [illegible], S. 419-21.

SO: LETOPIS' No. 34

VITRENKO, P.M., Engr.

"Drying ware at the Krasnaya Zvezda plant"

Ogneupory, No. 9, 1949

VITRENKO, P. M. Engr.

"Increasing the productivity of a tube calorfier at the 'Krasnaya Zvezda' Plant"

Ogneupory, No. 12, 1949

ZHIKHAREVICH, S.A.; ZELENSKAYA, A.[illegible] SAFRONOVA, I.P.; ZOZULYA, I.S.; VITRENKO, P.M.; CHERNYAVSKAYA, Z.Ya.; ABRAMOVICH, A.M.

Production and service of graphite containing inserts. Ogneupory 29 no.12:536-540 '64. (MIRA 18:1)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (for Zhikharevich, Zelenskava, Safronova). 2. Konstantinovskiy ogneupornyy zavod "Krasnyy Oktyabr'" (for Zozulya, Vitrenko, Chernyavskaya, Abramovich).

VITRENKO, L. M.

Vitrenko, L. M. - "Automatic control of separate production processes in coal-concentrating plants," Raboty DONUGI (Donetskiy nauck.-issled. ugol'nyy in-t), symposium 4, 1948, p. 25-37

So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

KOTOV, I.; VITRENKO, T., inzh.

Introducing large structural elements into rural construction. Sel'. stroi. 15 no.4:4-7 Ap '61. (MIRA 14:6)

1. Glavnyy inzh. Upravleniya "Lenoblstroy" (for Kotov).
(Precast concrete construction)
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Quantitative analysis of atmospheres of hot supergiants.
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Spectral variability of the supergiant η Leonis. Astron. zhur. 41 no.4:637-643 Jl- Ag '64 (MIRA 17:8)

1. Krymskaya astrofizicheskaya observatoriya AN SSSR.

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AUTHOR: Malov, I. F., Vitrichenko, E. A.

TITLE: Spectral variability of the supergiant Eta Leo

SOURCE: Astronomicheskiy zhurnal, v. 41, no. 4, 1964, 637-643

TOPIC TAGS: astronomy, stellar astronomy, supergiant star, star, stellar atmosphere, stellar electron pressure, stellar variability

ABSTRACT: A study has been made of changes in the spectrum of the supergiant η Leo (A0Ib). The investigation was based on 18 spectrograms obtained during 1958-60 using the 50" reflector of the Crimean Observatory with a dispersion of 23.4 A/mm at Hγ. The spectral region from 4600 A to Hξ was used. It was found that there are changes in the equivalent widths and profiles of the hydrogen lines Hδ and Hγ as well as in the equivalent widths of the lines of metals. The authors discuss the problem of the possible physical changes in the atmosphere of the star responsible for the observed spectral changes. Estimates of the change in temperature lead to the value $\Delta T \approx 1000C$, changes in electron pressure by a factor of 2 and a change in radius as great as 30%. It is noted that the changes in w_λ (equivalent width) and profiles of the hydrogen lines considerably

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exceed observational errors. The probable relative error of one determination of w_λ is not more than 10%, whereas the maximum change in w_λ was 50%. The wings of the hydrogen lines are subject to considerable changes, probably associated with pressure change. If the atmosphere remains in hydrostatic equilibrium at all times, the relative change in radius of the star, corresponding to a change in acceleration by Δg, is:

$$\Delta R / R = -\tfrac{1}{2}(\Delta g / g). \quad (1)$$

using a table in the text, it is found that:

$$\Delta R / R = -36\%. \quad (2)$$

The minus sign means that on April 14, 1960 the radius of 71 Leo was 36% smaller than on April 26, 1958. The electron density was determined from the ionization state of Fe, using the Saha formula; it increased during this same time by a factor of 2.3. If the changes in radius and temperature are correct, there should be a change in the brightness of the star in visible rays up to $0^m.14$, in photographic rays up to $0^m.21$, and in color

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index up to $0^m.07$. However, this does not agree with the results obtained by E. S. Brodskaya (Izv. Kry*mskoy astrofiz. observ., 6, 84, 1951). "The authors wish to thank I. M. Kopy*lov for valuable advice and useful discussions of this subject". Orig. art. has: 5 formulas, 5 figures and 7 tables.

ASSOCIATION: Kry*mskaya astrofizicheskaya observatoriya Akademii nauk SSSR (Crimean Astrophysical Observatory, Academy of Sciences of the SSSR)

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Card 3/3

VITRIK, D.I.

All-Union Scientific Research Institute for the Organization and Mechanization of Mine Building. Shakht.stroi. no.11:21-22 N '57. (MIRA 10:12)

1. Direktor Vsesoyuznogo nauchno-issledovatel'skogo instituta organizatsii i mekhanizatsii shakhtnogo stroitel'stva.
(Mining engineering) (Mining machinery) (Research, Industrial)

VITRIK, D.I., red.; BESSMERTNYY, A.S., red.; DOROSHENKO, G.N., red.; ZELINSKIY, V.M., red.; KOKSHENEV, B.G., red.; SLAVUTSKIY, S.M., red.; SHISHOV, Ye.L., red.; SHKABARA, M.N., doktor geolog.-mineral.nauk, red.; VOLOVICH, M.Z., red.izd-va; BERESLAVSKAYA, L.Sh., tekhn.red.; NADEINSKAYA, A.A., tekhn.red.

[Studies in mine construction] Issledovaniia po shakhtnomy stroitel'stvu. Moskva, Ugletekhizdat, 1958. 213 p. (MIRA 12:3)

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